

# Compressive Strength of Fly Ash Mortar (M8F9525)

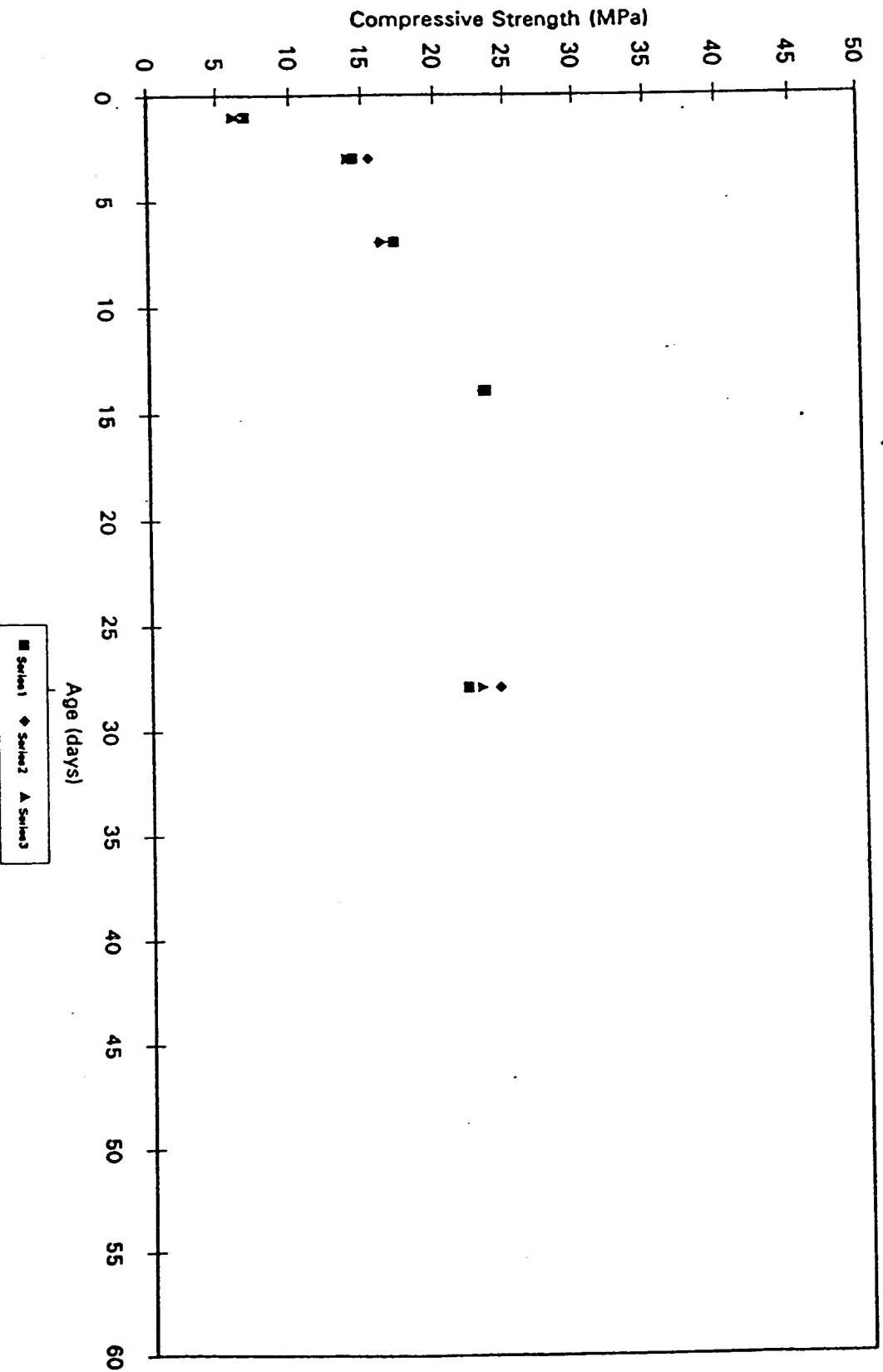


Figure 1

# Compressive Strength of Fly Ash Mortar (M9F9525)

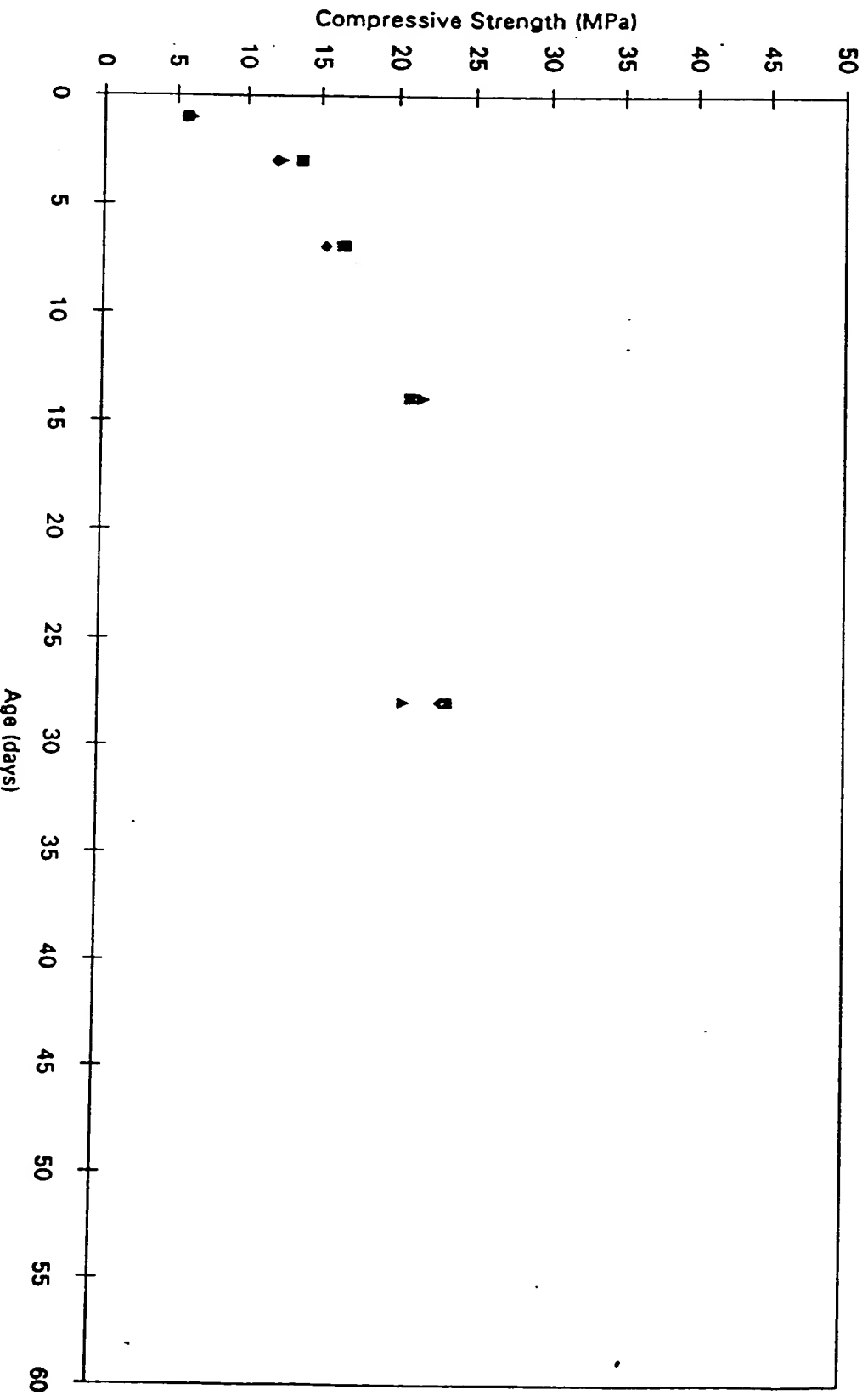


Figure 2

## Compressive Strength of Fly Ash Mortar (M8F9535)

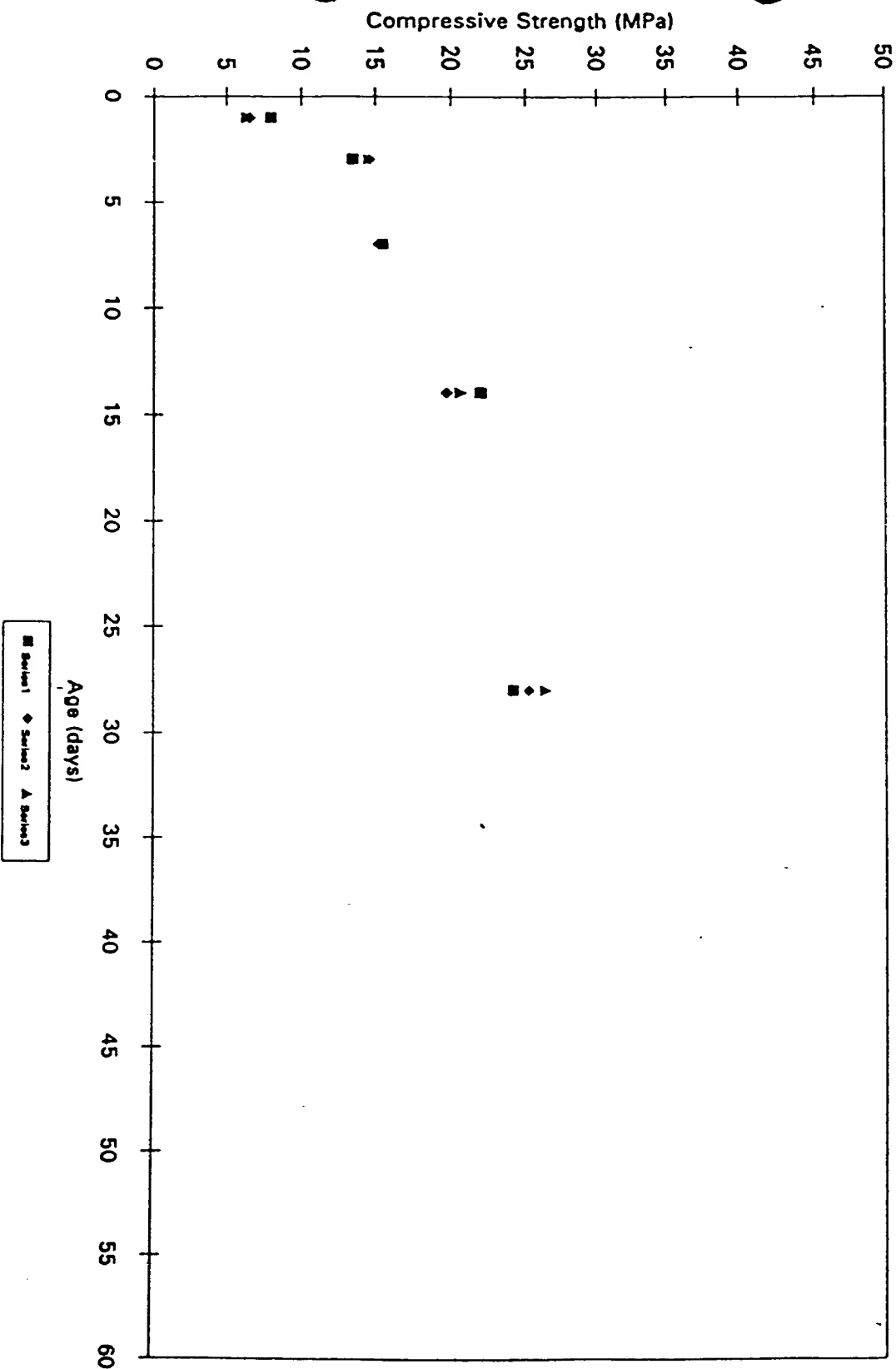


Figure 3

# Compressive Strength of Fly Ash Mortar (M9F9535)

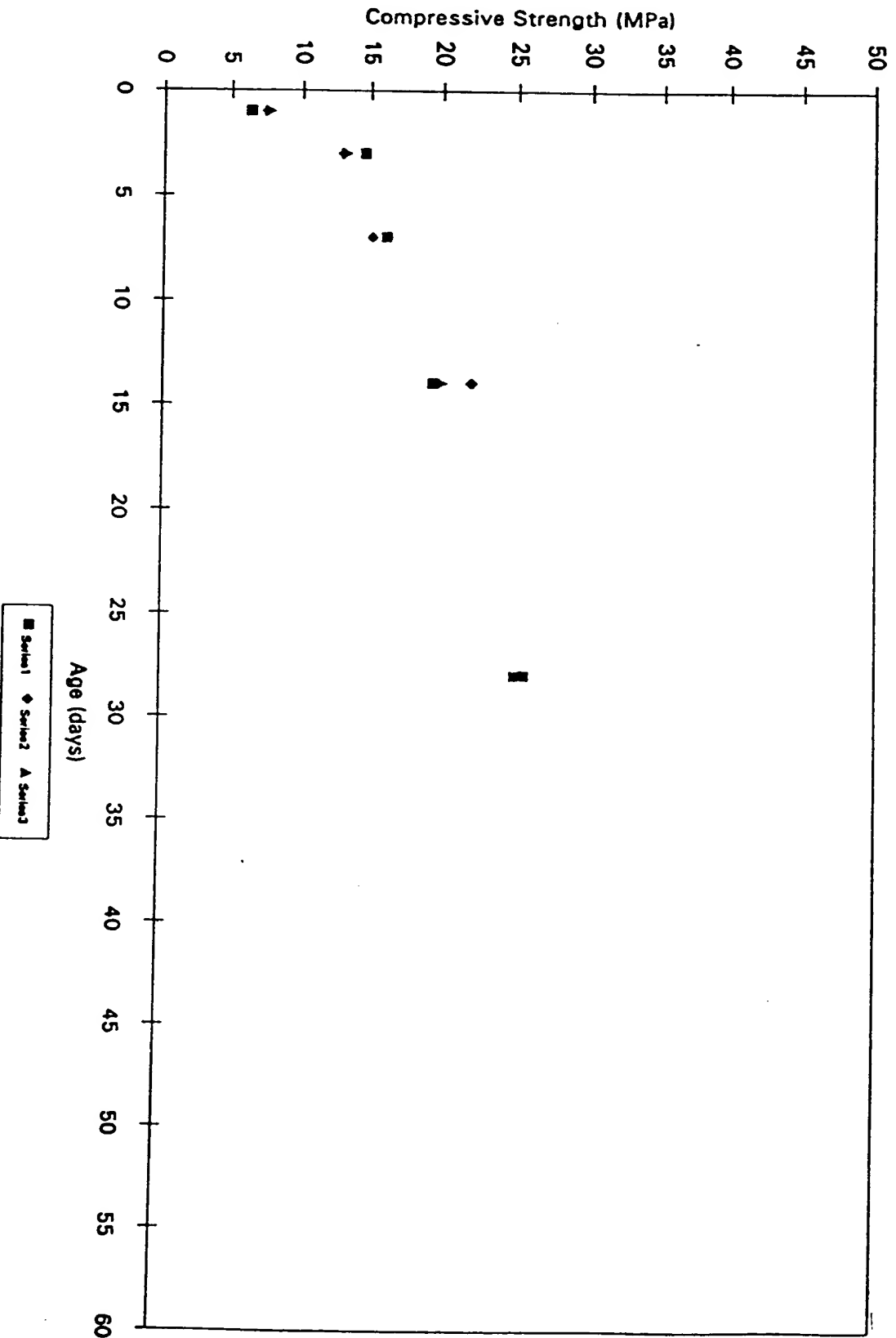


Figure 4

## Compressive Strength of Fly Ash Mortar (M13N9425)

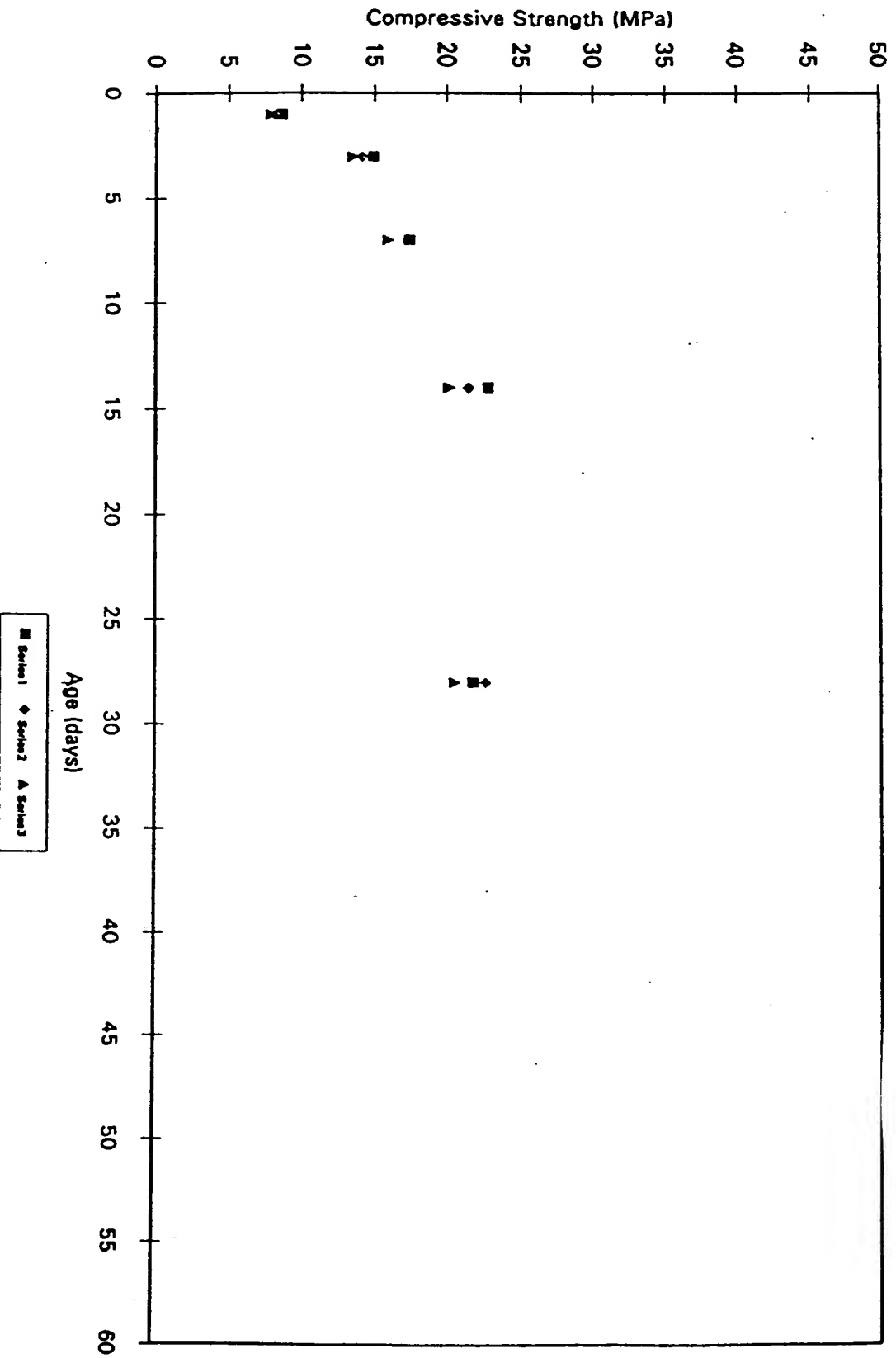


Figure 5

## The Dry Grinding Process

The Attritor dry grinding process is achieved in a stationary tank by means of a rotating shaft and arms that agitate the media into a random state of motion of internal porosity called kinematic porosity. In this expanded condition, the media and particles are free to move, collide and impinge upon each other.

FIG. 6 A. KINEMATIC POROSITY

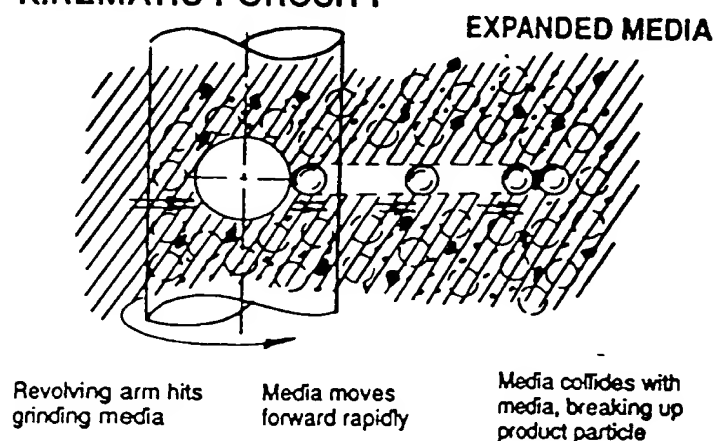


FIG. 6 B. MEDIA AT REST

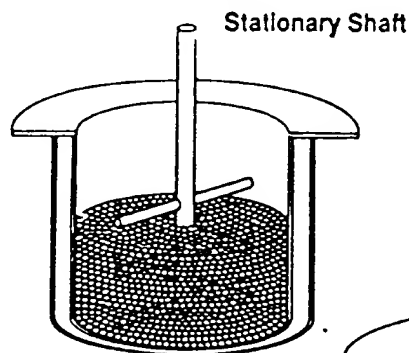


FIG. 6 C.

EXPANDED MEDIA  
Rotating Shaft

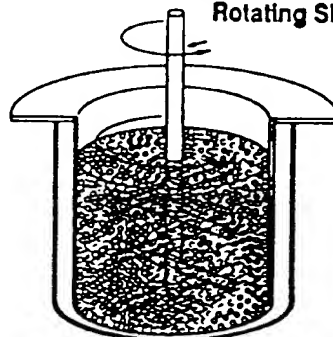


Figure 6

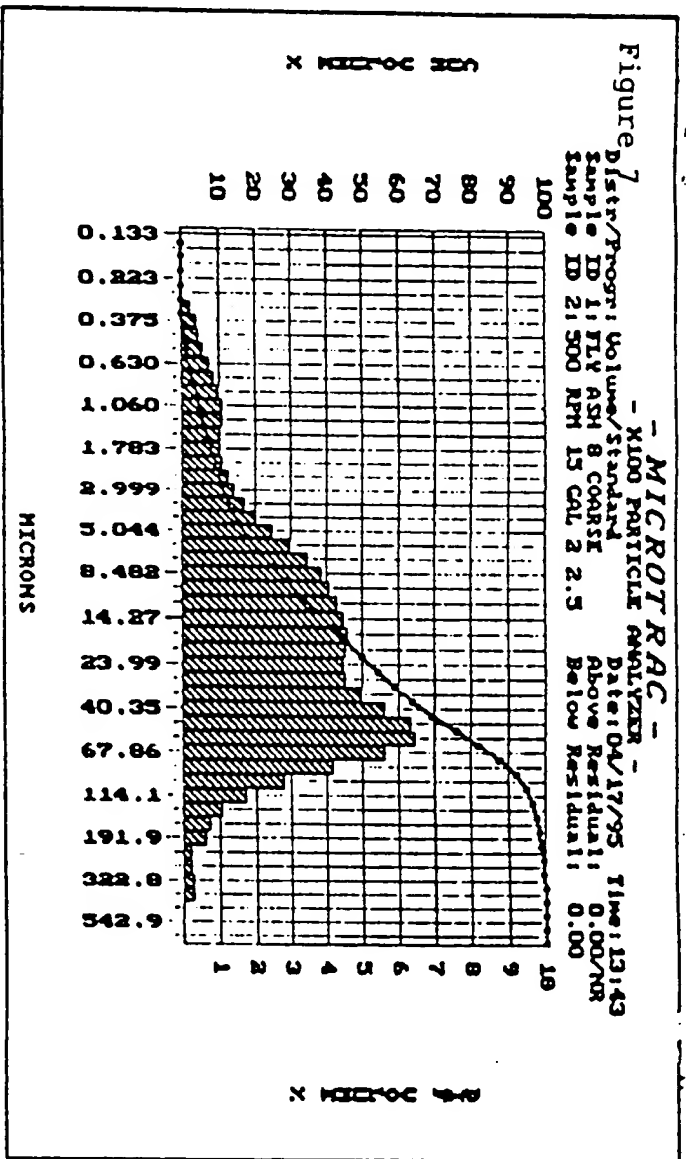


Figure 7

UNground

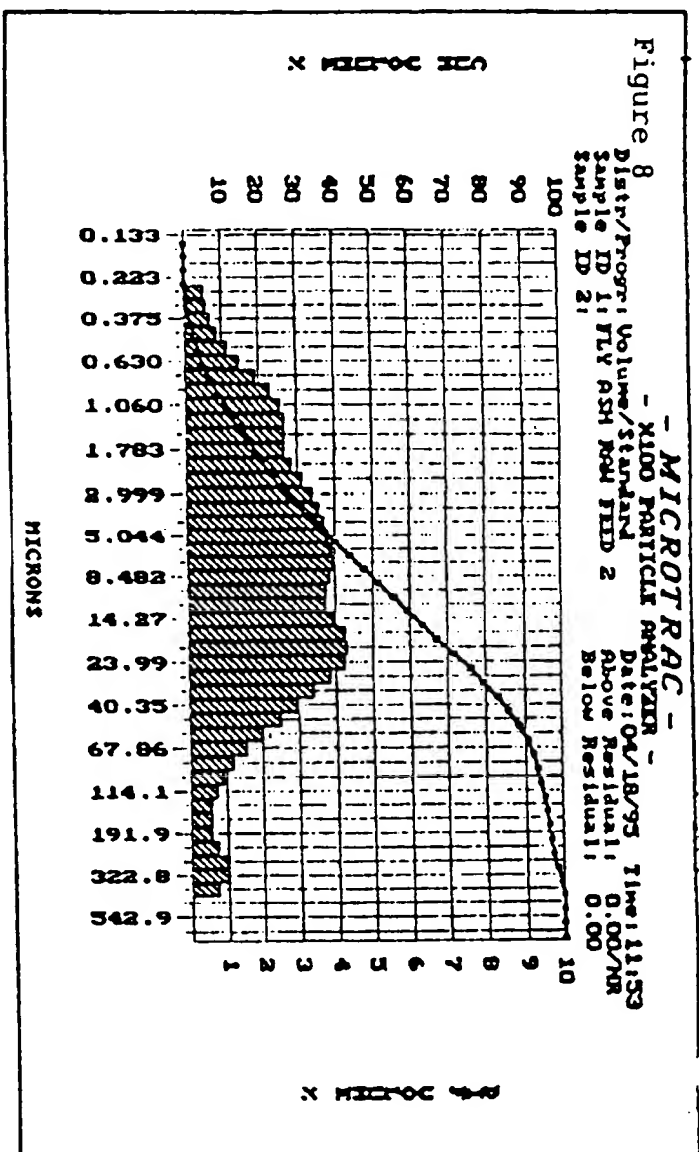


Figure 8



# Compressive Strength of Fly Ash Mortar (MOG9525)

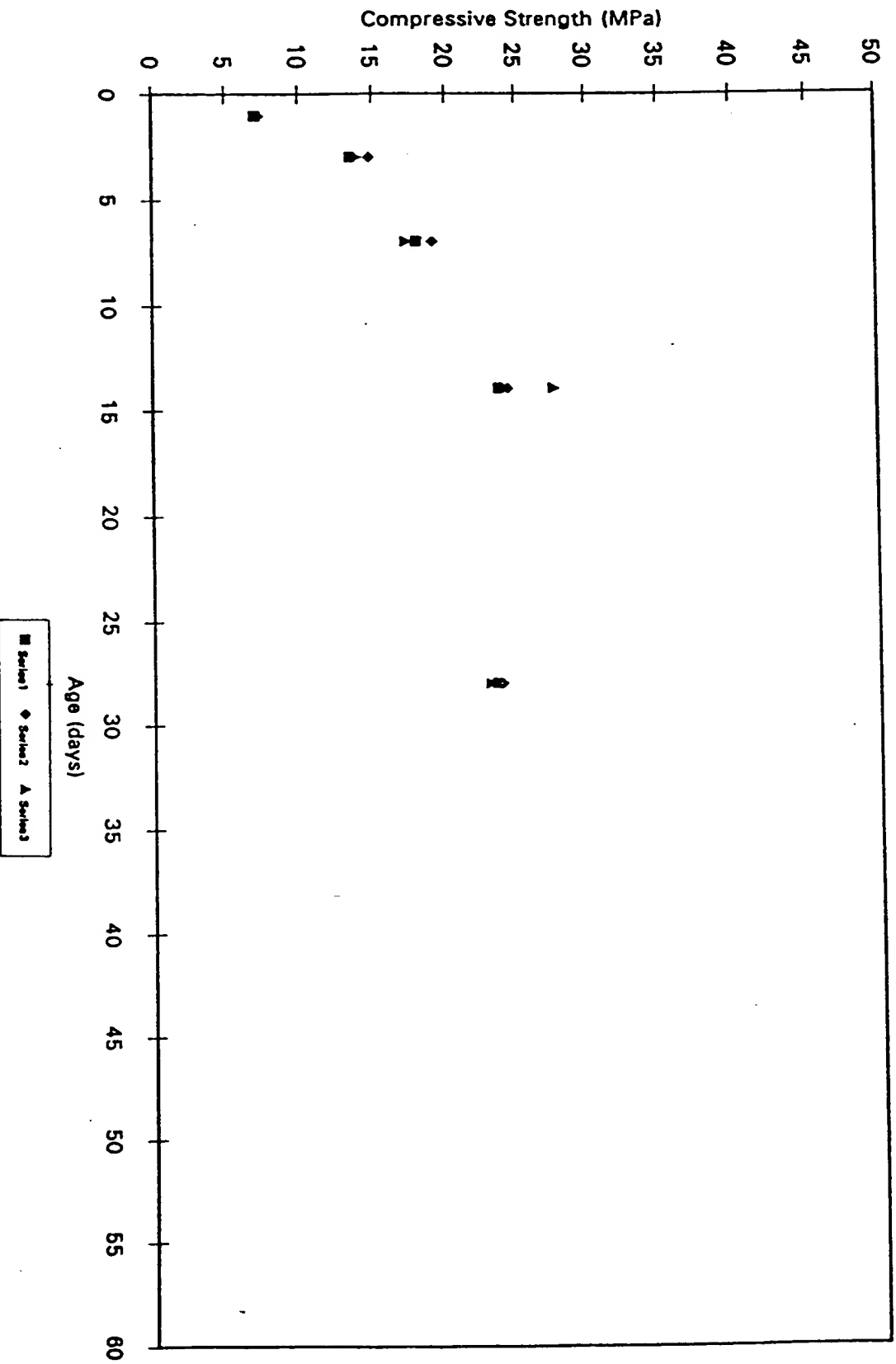


Figure 9

# Compressive Strength of Fly Ash Mortar (M8CG225)

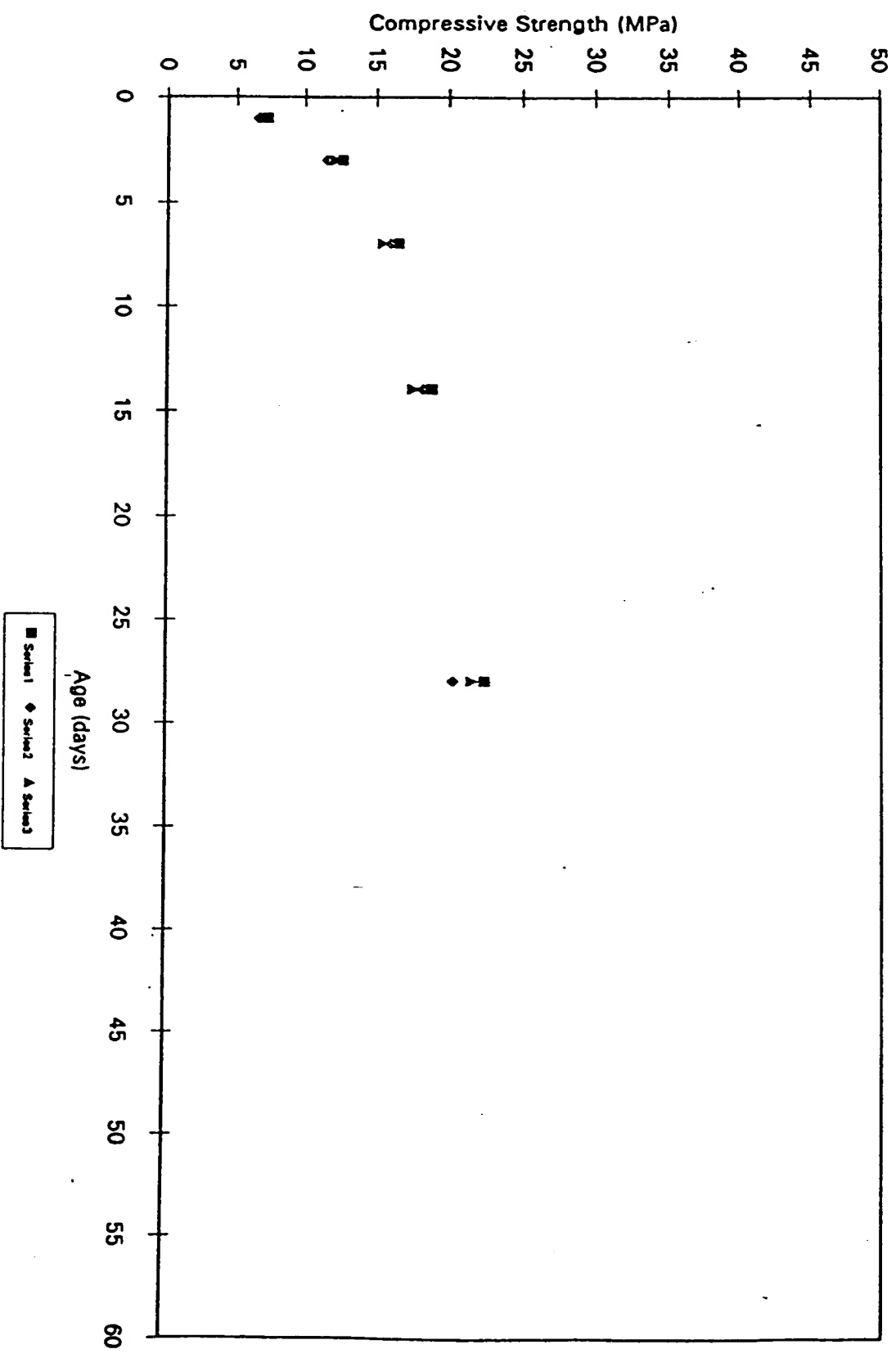


Figure 10

# Compressive Strength of Fly Ash Mortar (MOG9535)

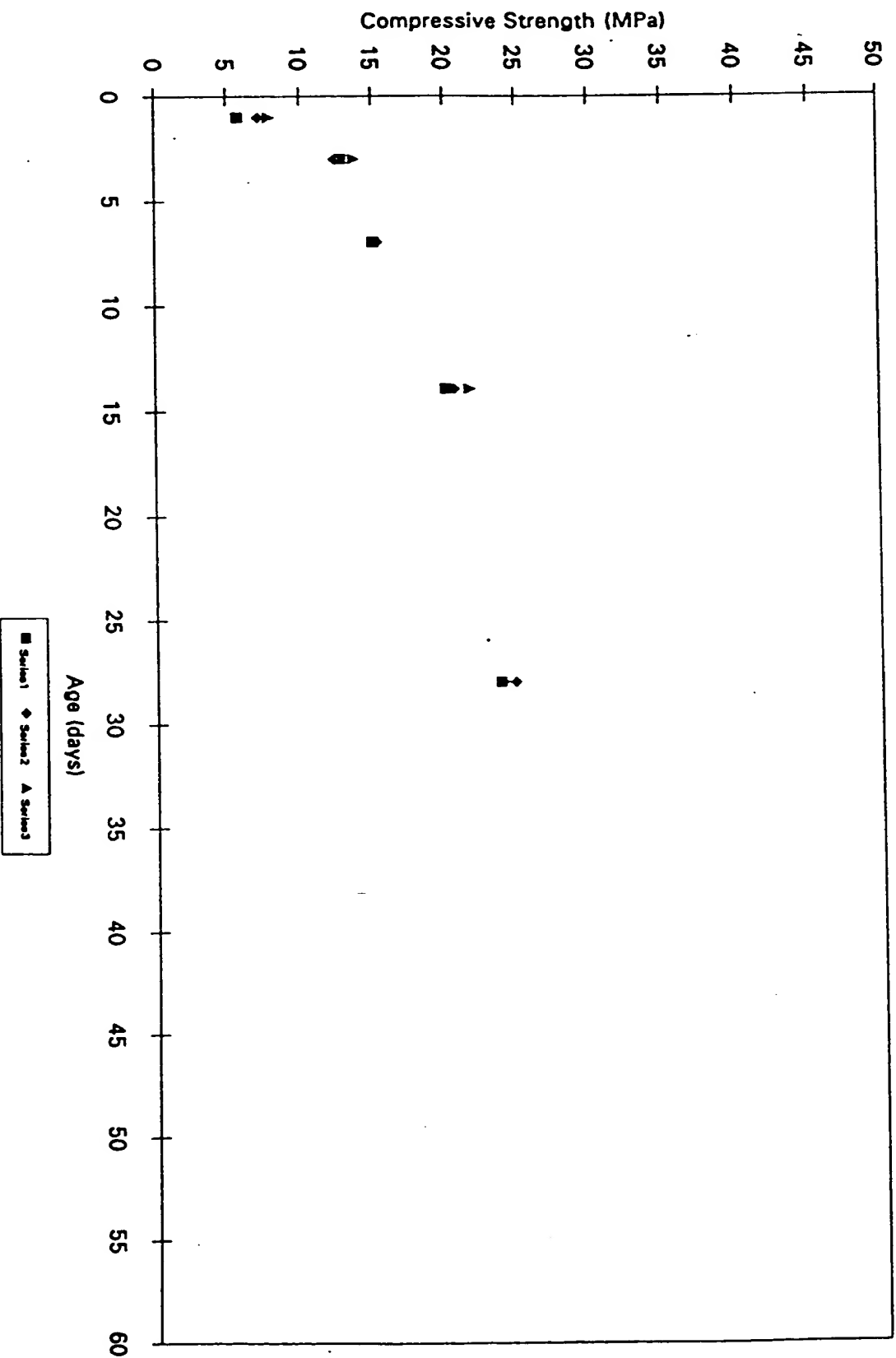


Figure 11

715-1-060 CIP (Sheet 12 of 23)  
Compressive Strength of Control Mortar  
(CC)

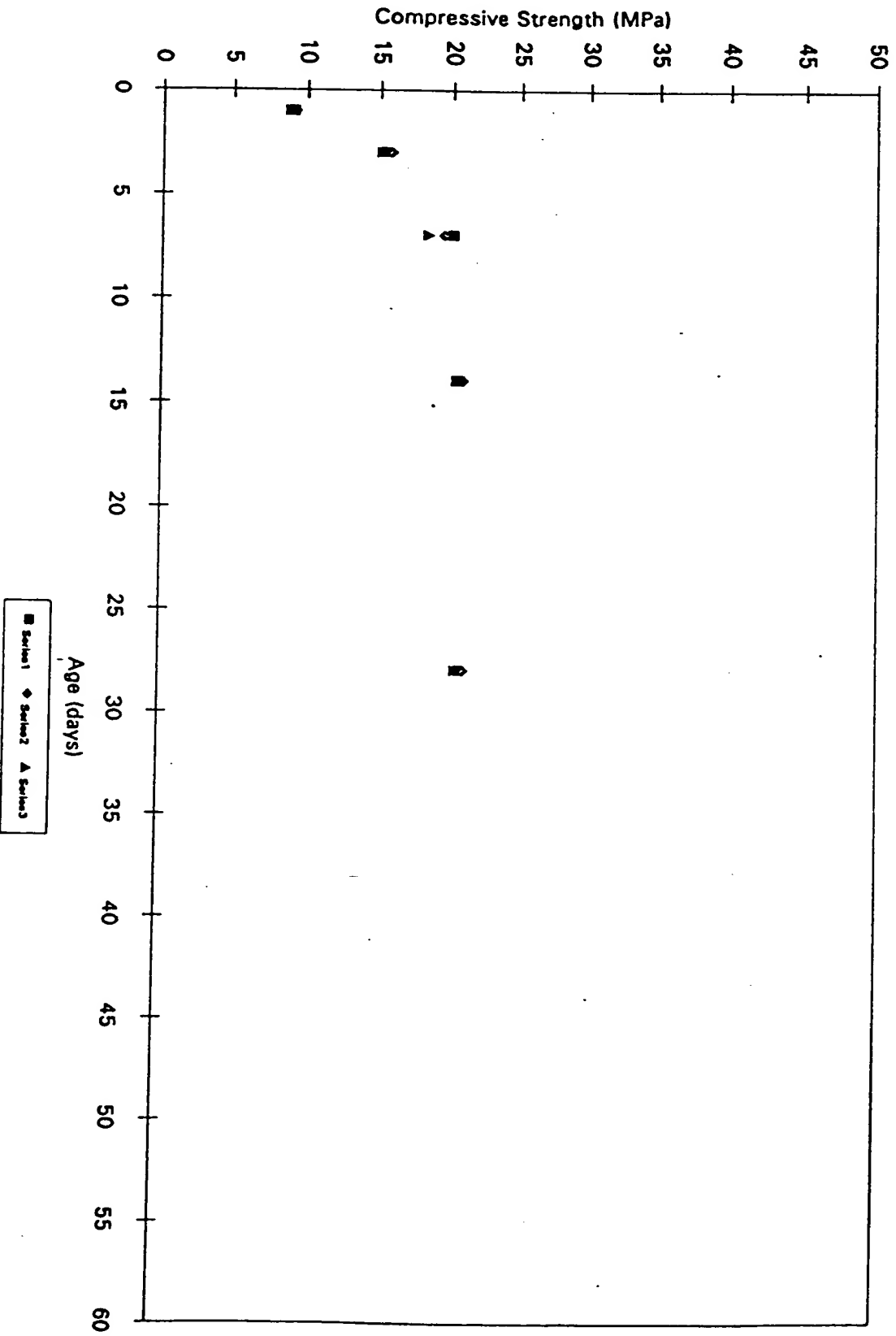
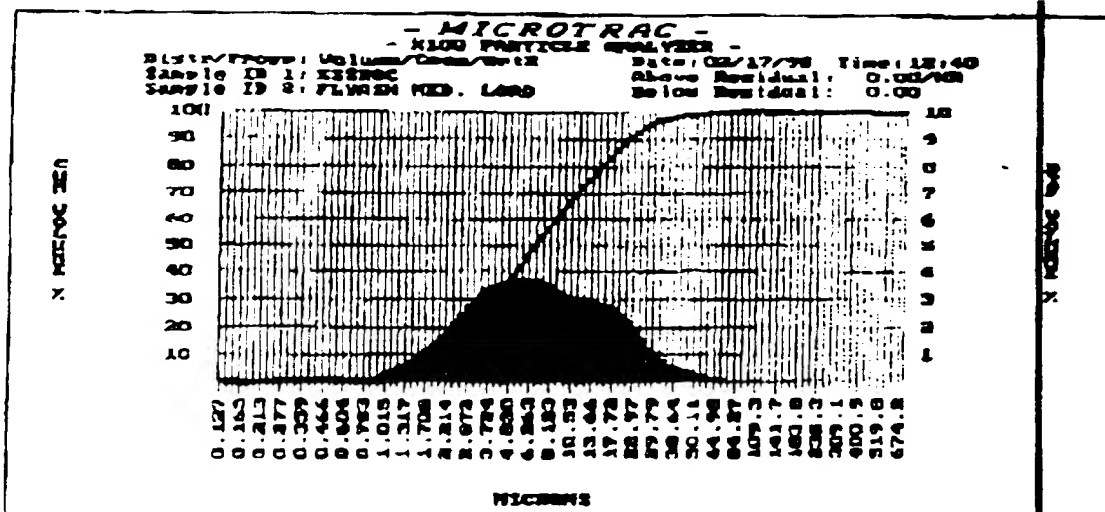


Figure 12



**10**

Figure 13



- MICROTRAC MICRO PARTICLE ANALYSIS - Percent Passing Data Version 6.5			
<b>TEST PROGRAM</b> ID: 1 NAME: KESROC FILE: 1301330-1331		<b>ANAL Parameters</b> Flow Rate: 15 ml/sec Ultrasonic Power: 10 watts Ultrasonic Time: 100 seconds	
Weigh/Press #: 1 - 1 Param #1: 0.000	Param #2: 0.000 Param #3: 0.000	Lot code: 00120 60120 1/10CS Account: 101 05	
<b>ID 01: KESROC</b> Distrib. Format: Volume Filter: On Run Time: 60 seconds Run Number: 1 of 1 runs Transmissivity: 0.00 Filter Loc: 002/1.004 Residual: 0.00/0.00 Above Residual: 0.00 Below Residual: 0.00		<b>ID 02: FLUID MED. LOAD</b> Date: 2/17/98 Time: 12:40 Filter: 0.00/0.00 Upper Channel: 100 Lower Channel: 100 Number of Channels: 100 Fluid Refractive Index: 1.33 Particle Transparency: 70000 Spherical Particles: No Part. Refractive Index: 1.01	
ch top	pass	t-ch	ch top
100.0	100.0	100.0	100.0
90.0	90.0	90.0	90.0
80.0	80.0	80.0	80.0
70.0	70.0	70.0	70.0
60.0	60.0	60.0	60.0
50.0	50.0	50.0	50.0
40.0	40.0	40.0	40.0
30.0	30.0	30.0	30.0
20.0	20.0	20.0	20.0
10.0	10.0	10.0	10.0
0.0	0.0	0.0	0.0

Figure 14

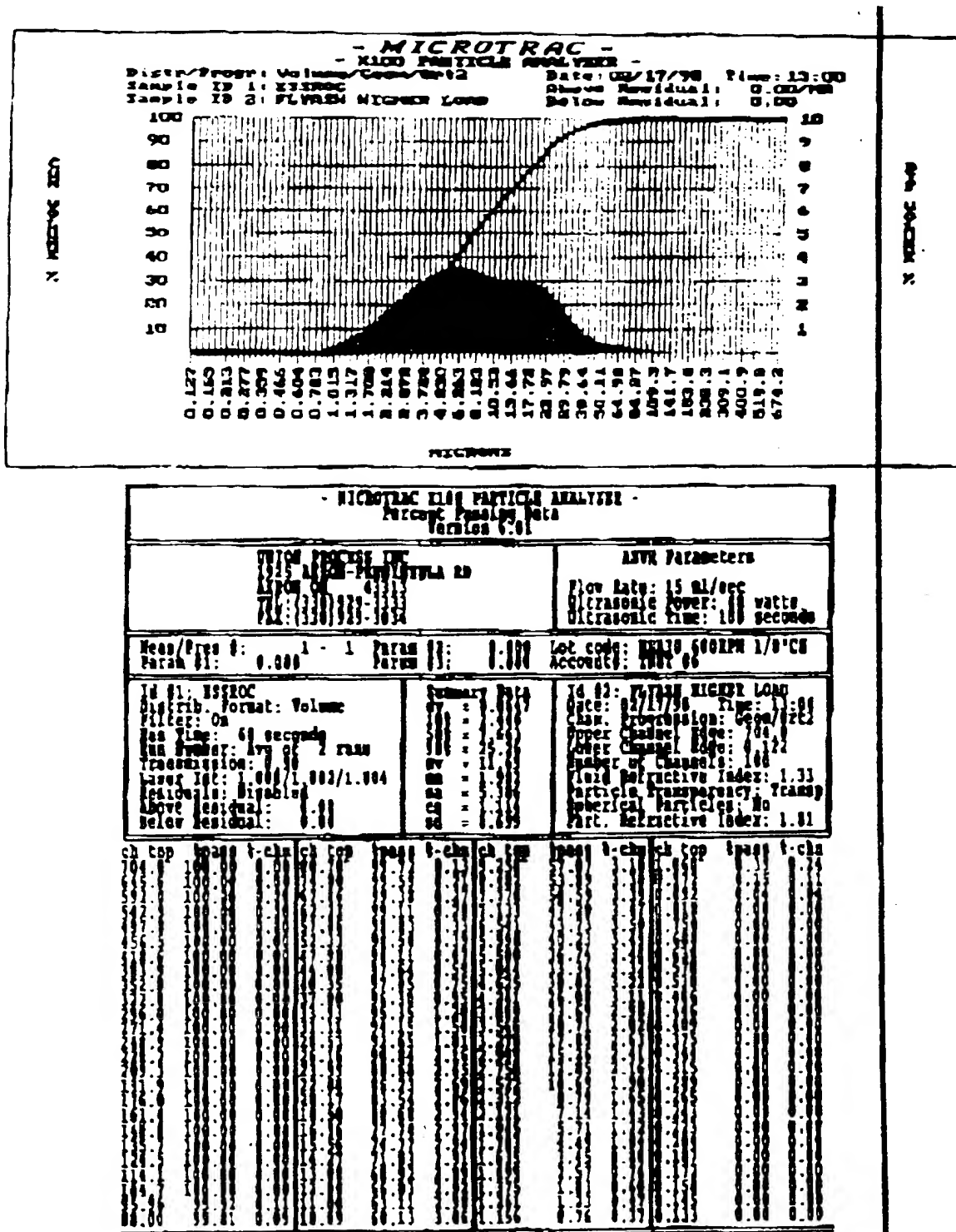
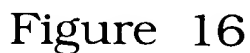
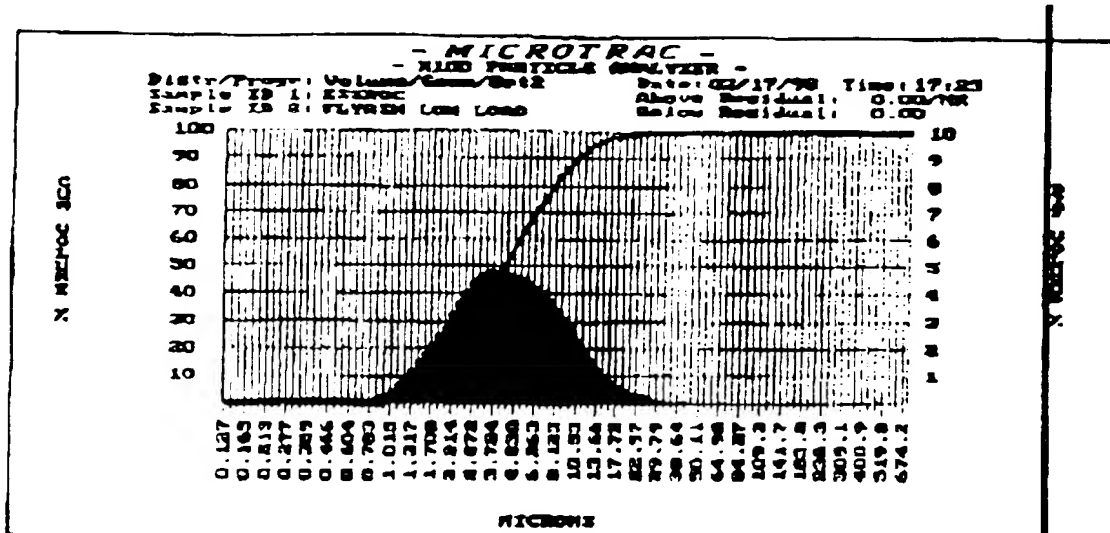


Figure 15







- MICROTRAC LIDAR PARTICLES ANALYZER - Percent Reporting Data Version 6.01														
VELOCITY PROFILES FLYASH ANALYSIS - FLYASH LOW LOAD Run: 11/11/98 17:23					ASPI Parameters Flow Rate: 15 ml/sec Ultrasonic Power: 100 watts Ultrasonic Time: 100 seconds									
Mean/Para 1: 0.004 1 - 1 Para 2: 1.000 Para 3: 1.000					Lot code: 000000 1/0/CS Account: 0000									
Id 01: K5510C Output: Format: Volume Filter: On Run Time: 60 seconds Run Number: 1 of 1 runs Transmission: 1.00 Laser Int: 1.000/1.000/1.000 Residuals: 0.00 Above Residual: 0.00 Below Residual: 0.00					Summary Data Run: 11/11/98 17:23 Filter: On Run Time: 60 seconds Run Number: 1 of 1 runs Transmission: 1.00 Laser Int: 1.000/1.000/1.000 Residuals: 0.00 Above Residual: 0.00 Below Residual: 0.00					Id 02: FLYASH LOW LOAD Date: 02/17/98 Time: 17:23 Run: 11/11/98 17:23 Filter: On Run Time: 60 seconds Run Number: 1 of 1 runs Transmission: 1.00 Laser Int: 1.000/1.000/1.000 Residuals: 0.00 Above Residual: 0.00 Below Residual: 0.00				
Fluid Refractive Index: 1.33 Particle Refractive Index: 1.51 Spherical Particles: No Part. Refractive Index: 1.51										Fluid Refractive Index: 1.33 Particle Refractive Index: 1.51 Spherical Particles: No Part. Refractive Index: 1.51				

Figure 17

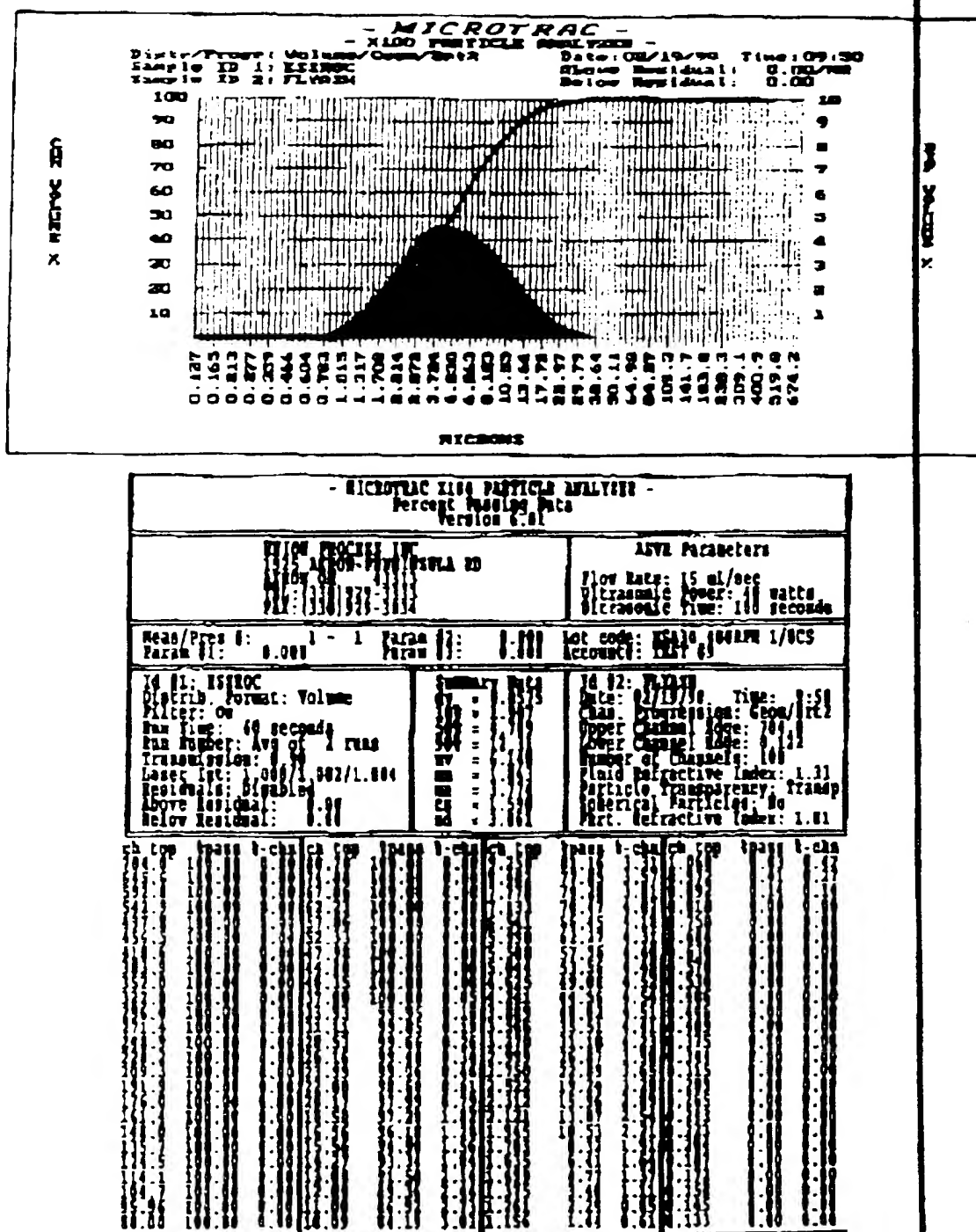


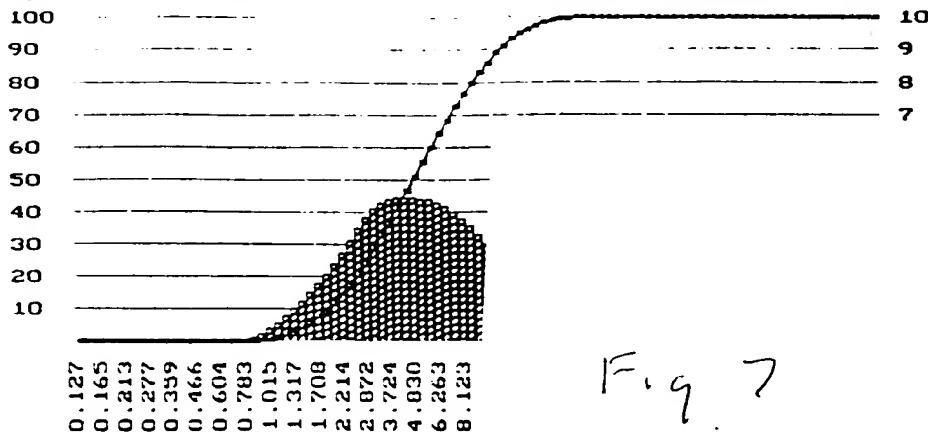
Figure 18

# 715-1-060 CIP (Sheet 19 of 23)

- MICROTRAC -  
- X100 PARTICLE ANALYZER -

Distr/Progr: Volume/Geom/8rt2      Date: 02/19/98    Time: 10:12  
Sample ID 1: ESSROC      Above Residual: 0.00/NR  
Sample ID 2: FLYASH      Below Residual: 0.00

X MICRO IEO



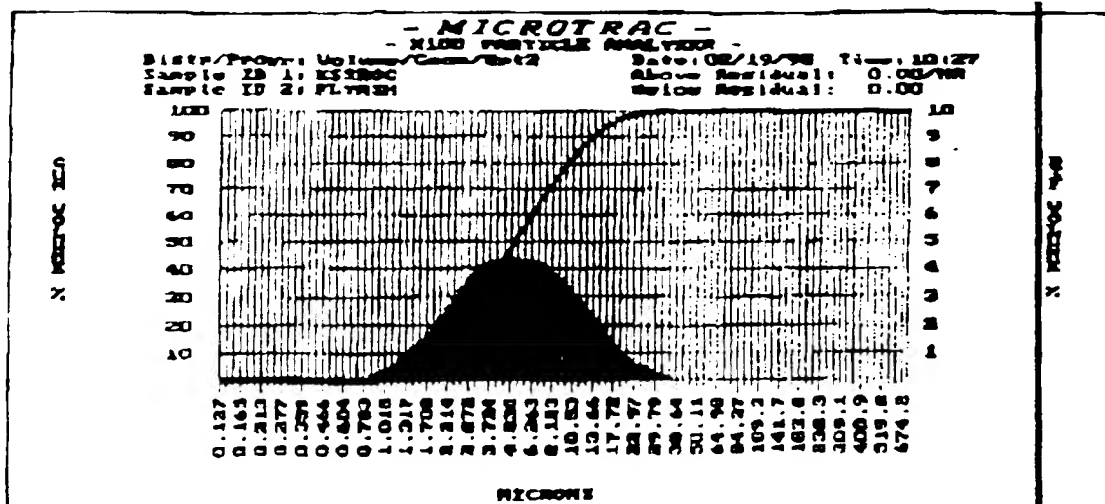
D K14

Fig 7  
L14

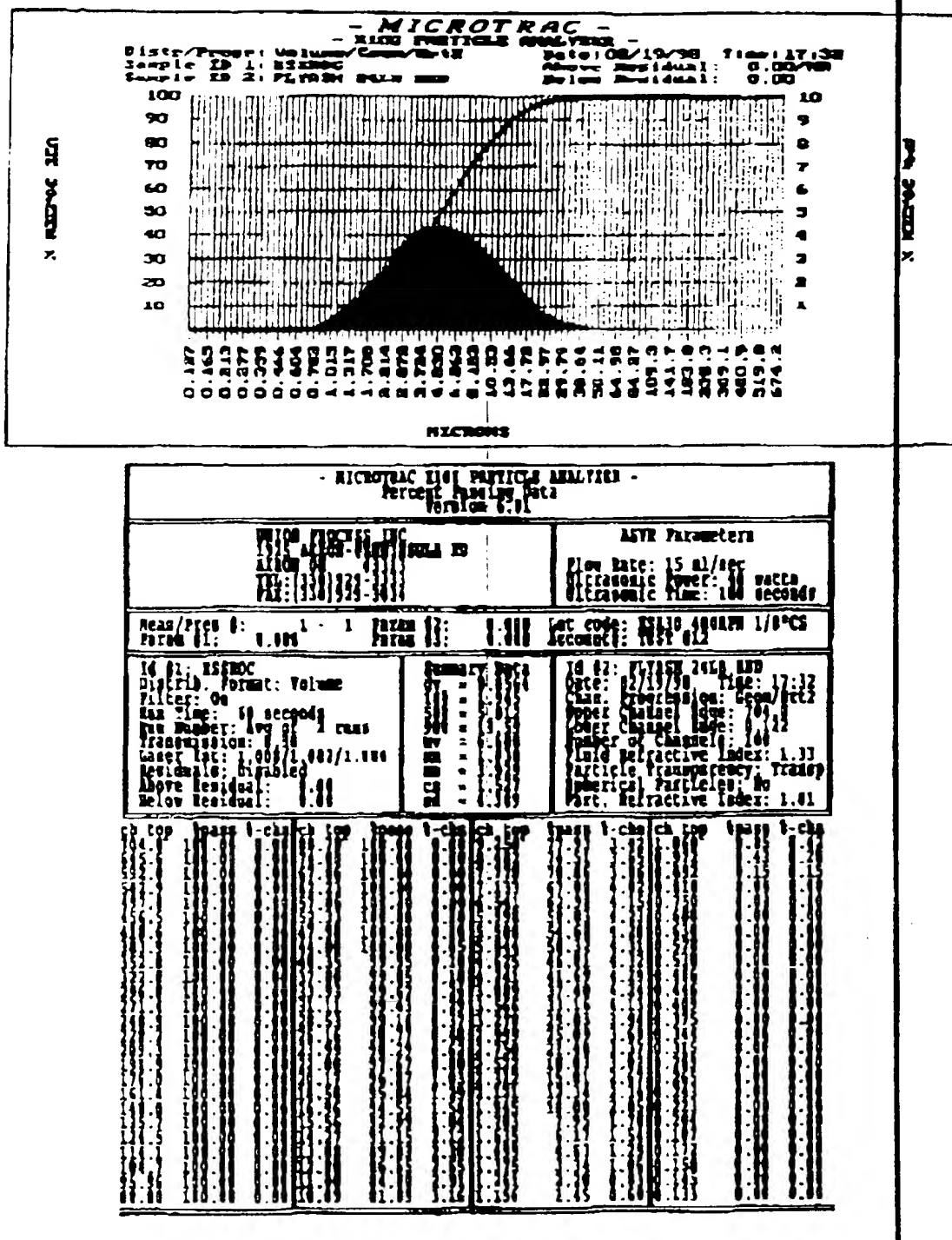
MICRO

- MICROTRAC X100 F Percent Pass Version											
UNION PROCESS INC 1925 AKRON-PENINSULA RD AKRON OH 44313 TEL: (330) 929-3333 FAX: (330) 929-3034						FLOW Rate: 400 RPM Ultrasonic Power: 40 watts Ultrasonic Time: 100 seconds					
Meas/Pres #: 1 - 1			Param #2: 0.000			Lot code: HSA30 400RPM 1/8CS					
Param #1: 0.000			Param #3: 0.000			Account#: TEST #10					
Id #1: ESSROC Distrib. Format: Volume Filter: On Run Time: 60 seconds Run Number: Avg of 2 runs Transmission: 0.93 Laser Int: 1.003/1.002/1.004 Residuals: Disabled Above Residual: 0.00 Below Residual: 0.00				Summary Data dv = 0.0393 10% = 1.969 50% = 4.912 90% = 12.55 mv = 6.301 mn = 1.873 ma = 3.899 cs = 1.539 sd = 3.965				Id #2: FLYASH Date: 02/19/98    Time: 10:12 Chan. Progression: Geom/8rt2 Upper Channel Edge: 704.0 Lower Channel Edge: 0.122 Number of Channels: 100 Fluid Refractive Index: 1.33 Particle Transparency: Transp Spherical Particles: No Part. Refractive Index: 1.81			
ch top	%pass	%chn	ch top	%pass	%chn	ch top	%pass	%chn	ch top	%pass	%chn
704.0	100.00	0.00	80.70	100.00	0.00	9.250	79.94	3.55	1.060	0.75	0.37
645.6	100.00	0.00	74.00	100.00	0.00	8.482	76.39	3.79	0.972	0.38	0.25
592.0	100.00	0.00	67.86	100.00	0.00	7.778	72.60	4.00	0.892	0.13	0.13
542.9	100.00	0.00	62.23	100.00	0.00	7.133	68.60	4.17	0.818	0.00	0.00
497.8	100.00	0.00	57.06	100.00	0.00	6.541	64.43	4.28	0.750	0.00	0.00
456.5	100.00	0.00	52.33	100.00	0.00	5.998	60.15	4.37	0.688	0.00	0.00
418.6	100.00	0.00	47.98	100.00	0.00	5.500	55.78	4.41	0.630	0.00	0.00
383.9	100.00	0.00	44.00	100.00	0.00	5.044	51.37	4.45	0.578	0.00	0.00
352.0	100.00	0.00	40.35	100.00	0.00	4.625	46.92	4.46	0.530	0.00	0.00
322.8	100.00	0.00	37.00	100.00	0.00	4.241	42.46	4.44	0.486	0.00	0.00
296.0	100.00	0.00	33.93	100.00	0.00	3.889	38.02	4.39	0.446	0.00	0.00
271.4	100.00	0.00	31.11	100.00	0.17	3.566	33.63	4.28	0.409	0.00	0.00
248.9	100.00	0.00	28.51	99.83	0.28	3.270	29.35	4.09	0.375	0.00	0.00
228.2	100.00	0.00	26.16	99.55	0.35	2.999	25.26	3.83	0.344	0.00	0.00
209.3	100.00	0.00	23.99	99.20	0.48	2.750	21.43	3.49	0.315	0.00	0.00
191.9	100.00	0.00	22.00	98.72	0.65	2.522	17.94	3.12	0.289	0.00	0.00
176.0	100.00	0.00	20.17	98.07	0.86	2.312	14.82	2.75	0.265	0.00	0.00
161.4	100.00	0.00	18.50	97.21	1.11	2.121	12.07	2.39	0.243	0.00	0.00
148.0	100.00	0.00	16.96	96.10	1.37	1.945	9.68	2.07	0.223	0.00	0.00
135.7	100.00	0.00	15.56	94.73	1.67	1.783	7.61	1.78	0.204	0.00	0.00
124.5	100.00	0.00	14.27	93.06	1.98	1.635	5.83	1.51	0.187	0.00	0.00
114.1	100.00	0.00	13.03	91.08	2.30	1.499	4.32	1.25	0.172	0.00	0.00
104.7	100.00	0.00	12.00	88.78	2.63	1.375	3.07	1.00	0.158	0.00	0.00
95.96	100.00	0.00	11.00	86.15	2.95	1.261	2.07	0.77	0.145	0.00	0.00
88.00	100.00	0.00	10.09	83.20	3.26	1.156	1.30	0.55	0.133	0.00	0.00

Figure 19



- MICROTRAC MICRO PARTICLE ANALYZER - Percent Passing Data Version 5.01			
UNION PROCESS INC 1500 ALBANY RD ALBANY, NY 12212-1001 TEL: (518) 486-1001		ASPR Parameters Flow Rate: 15 ml/sec Ultrasonic Power: 80 watts Ultrasonic Time: 100 seconds	
Reas/Procr: 1 - 1 Param 01: 0.004	Param 02: 0.000	Lot code: K5280C 1/10C Account: 105811	
Id 01: K5280C Distri. Format: Volume Filter: 00 Run Time: 60 seconds Run Mode: avy Transmission: 0.00 Above Res: 0.00/1.002/1.004 Residuals: 0.00 Above Residual: 0.00 Below Residual: 0.00	Summary Data CV = 0.00 SD = 0.00 MEAN = 0.00 MODE = 0.00 MAX = 0.00 MIN = 0.00 RANGE = 0.00 STDEV = 0.00 VARIANCE = 0.00 COEFF = 0.00 SKEW = 0.00 KURTOSIS = 0.00 P1 = 0.00 P5 = 0.00 P10 = 0.00 P25 = 0.00 P50 = 0.00 P75 = 0.00 P90 = 0.00 P95 = 0.00 P99 = 0.00 P100 = 0.00	Id 02: FLV85H Date: 02/19/98 Time: 10:27 Chan: Progression: Count/rc2 Upper Channel Edge: 0.00 Lower Channel Edge: 0.00 Number of Channels: 100 Auto Inertial Index: 1.33 Particle Transparency: Transp Spherical Particles: No Part. Attractive Index: 1.01	
ch top	Pass	t-ch	ch top
700	1	1	700
600	1	1	600
500	1	1	500
400	1	1	400
300	1	1	300
200	1	1	200
100	1	1	100
50	1	1	50
25	1	1	25
12.5	1	1	12.5
6.25	1	1	6.25
3.125	1	1	3.125
1.5625	1	1	1.5625
0.78125	1	1	0.78125
0.390625	1	1	0.390625
0.1953125	1	1	0.1953125
0.09765625	1	1	0.09765625
0.048828125	1	1	0.048828125
0.0244140625	1	1	0.0244140625
0.01220703125	1	1	0.01220703125
0.006103515625	1	1	0.006103515625
0.0030517578125	1	1	0.0030517578125
0.00152587890625	1	1	0.00152587890625
0.000762939453125	1	1	0.000762939453125
0.0003814697265625	1	1	0.0003814697265625
0.00019073486328125	1	1	0.00019073486328125
0.000095367431640625	1	1	0.000095367431640625
0.0000476837158203125	1	1	0.0000476837158203125
0.00002384185791015625	1	1	0.00002384185791015625
0.000011920928955078125	1	1	0.000011920928955078125
0.0000059604644775390625	1	1	0.0000059604644775390625
0.00000298023223876953125	1	1	0.00000298023223876953125
0.000001490116119384765625	1	1	0.000001490116119384765625
0.0000007450580596923828125	1	1	0.0000007450580596923828125
0.00000037252902984619140625	1	1	0.00000037252902984619140625
0.000000186264514923095703125	1	1	0.000000186264514923095703125
0.0000000931322574615478515625	1	1	0.0000000931322574615478515625
0.00000004656612873077392578125	1	1	0.00000004656612873077392578125
0.000000023283064365386962890625	1	1	0.000000023283064365386962890625
0.0000000116415321826934814453125	1	1	0.0000000116415321826934814453125
0.00000000582076609134674072265625	1	1	0.00000000582076609134674072265625
0.000000002910383045673370361328125	1	1	0.000000002910383045673370361328125
0.0000000014551915228366851806640625	1	1	0.0000000014551915228366851806640625
0.00000000072759576141834259033203125	1	1	0.00000000072759576141834259033203125
0.000000000363797880709171295166015625	1	1	0.000000000363797880709171295166015625
0.0000000001818989403545856475830078125	1	1	0.0000000001818989403545856475830078125
0.00000000009094947017729282379150390625	1	1	0.00000000009094947017729282379150390625
0.000000000045474735088646411895751953125	1	1	0.000000000045474735088646411895751953125
0.0000000000227373675443232059478759765625	1	1	0.0000000000227373675443232059478759765625
0.00000000001136868377216160297393798828125	1	1	0.00000000001136868377216160297393798828125
0.000000000005684341886080801486968994140625	1	1	0.000000000005684341886080801486968994140625
0.000000000002842170943040400743484497072265625	1	1	0.000000000002842170943040400743484497072265625
0.0000000000014210854715202003717422485361328125	1	1	0.0000000000014210854715202003717422485361328125
0.00000000000071054273576010018587112426806640625	1	1	0.00000000000071054273576010018587112426806640625
0.000000000000355271367880050092935562134403203125	1	1	0.000000000000355271367880050092935562134403203125
0.0000000000001776356839400250464677810672016015625	1	1	0.0000000000001776356839400250464677810672016015625
0.00000000000008881784197001252323389053360080078125	1	1	0.00000000000008881784197001252323389053360080078125
0.000000000000044408920985006261616945266800400390625	1	1	0.000000000000044408920985006261616945266800400390625
0.0000000000000222044604925031308084726334002001953125	1	1	0.0000000000000222044604925031308084726334002001953125
0.00000000000001110223024625156540423631670010009765625	1	1	0.00000000000001110223024625156540423631670010009765625
0.00000000000000555111512312578270211815835000500048828125	1	1	0.00000000000000555111512312578270211815835000500048828125
0.000000000000002775557561562891351059079175002500244140625	1	1	0.000000000000002775557561562891351059079175002500244140625
0.0000000000000013877787807814456755295395875012501220703125	1	1	0.0000000000000013877787807814456755295395875012501220703125
0.0000000000000006938893903907228377647697937500625006103515625	1	1	0.0000000000000006938893903907228377647697937500625006103515625
0.000000000000000346944695195361418882384896875031250030517578125	1	1	0.000000000000000346944695195361418882384896875031250030517578125
0.000000000000000173472347597680709441192448437501562500152587890625	1	1	0.000000000000000173472347597680709441192448437501562500152587890625
0.00000000000000008673617379884035472059622421875078125000762939453125	1	1	0.00000000000000008673617379884035472059622421875078125000762939453125
0.00000000000000004336808689942017736029811210937503906250003814697265625	1	1	0.00000000000000004336808689942017736029811210937503906250003814697265625
0.00000000000000002168404344971008868014905605468750195312500019073486328125	1	1	0.00000000000000002168404344971008868014905605468750195312500019073486328125
0.00000000000000001084202172485504434007452802734375009765625000095367431640625	1	1	0.00000000000000001084202172485504434007452802734375009765625000095367431640625
0.00000000000000000542101086242752217003726401367187500488281250000476837158203125	1	1	0.00000000000000000542101086242752217003726401367187500488281250000476837158203125
0.00000000000000000271050543121376108501863200683593750024414062500002384185791015625	1	1	0.00000000000000000271050543121376108501863200683593750024414062500002384185791015625
0.000000000000000001355252715606880542500931600341796875001220703125000011920928955078125	1	1	0.000000000000000001355252715606880542500931600341796875001220703125000011920928955078125
0.0000000000000000006776263578034402712500465800170898437500061035156250000059604644775390625	1	1	0.000000000000000000677626357803440271250046580017089843750006103515625000059604644775390625
0.0000000000000000003388131789017201356250023290008544718750003051757812500000298023223876953125	1	1	0.000000000000000000338813178901720135625002329000854471875000305175781250000298023223876953125
0.00000000000000000016940658945086006781250011645000427239375000152587890625000001490116119384765625	1	1	0.00000000000000000016940658945086006781250011645000427239375000152587890625000001490116119384765625
0.00000000000000000008470329472543003390625000582250021361968750000762939453125000007450580596923828125	1	1	0.00000000000000000008470329472543003390625000582250021361968750000762939453125000007450580596923828125
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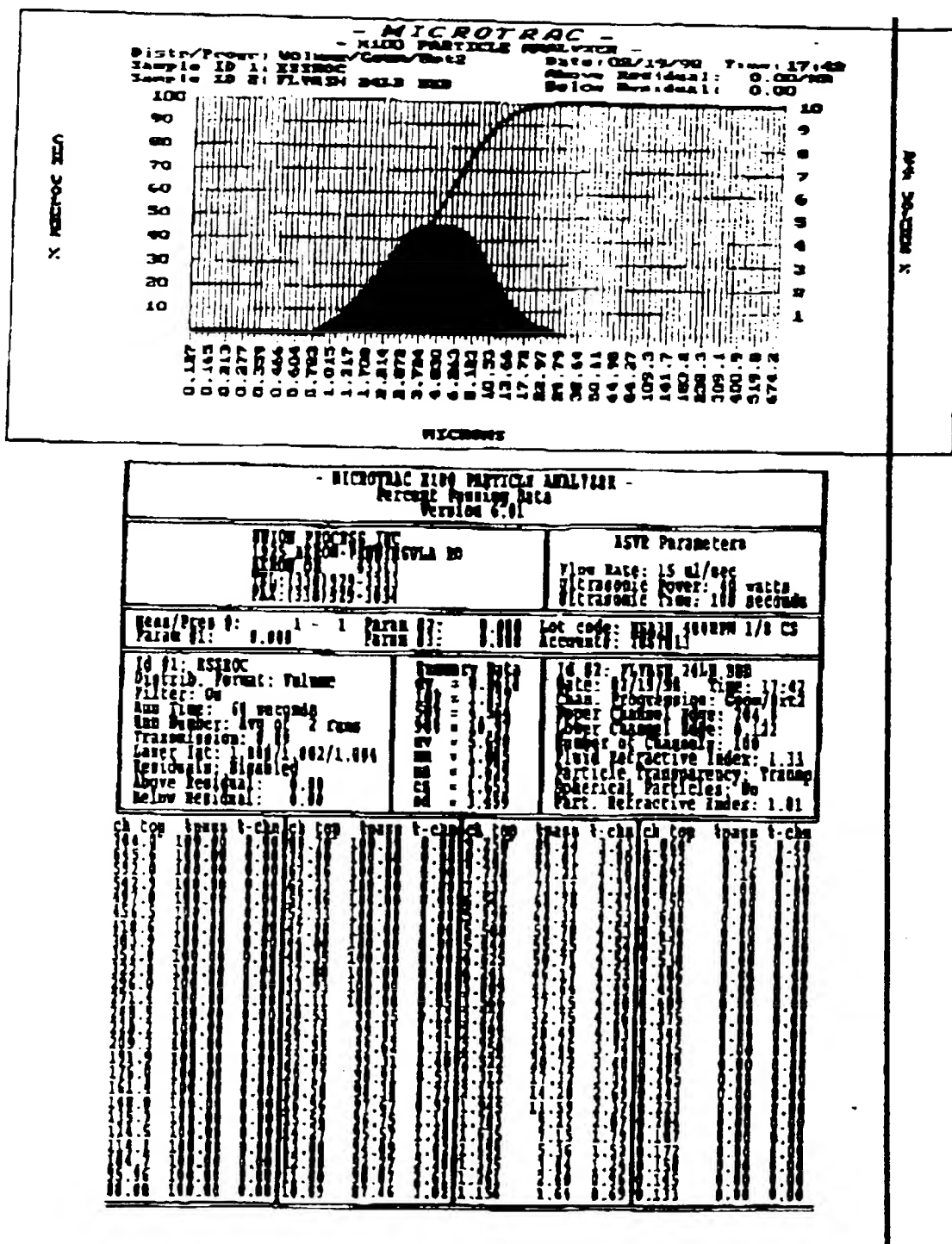


Figure 22

[illegible]